

PATENT COOPERATION TREATY

PCT

INTERNATIONAL SEARCH REPORT

(PCT Article 18 and Rules 43 and 44)

Applicant's or agent's file reference 030483PC	<div style="display: flex; justify-content: space-between;"> <div> FOR FURTHER ACTION </div> <div> see Form PCT/ISA/220 as well as, where applicable, item 5 below. </div> </div>	
International application No. PCT/AU2004/001821	International filing date (<i>day/month/year</i>) 23 December 2004	(Earliest) Priority Date (<i>day/month/year</i>) 8 January 2004
Applicant SAVE THE WORLD AIR, INC et al		

This international search report has been prepared by this International Searching Authority and is transmitted to the applicant according to Article 18. A copy is being transmitted to the International Bureau.

This international search report consists of a total of **7** sheets.

☐ It is also accompanied by a copy of each prior art document cited in this report.

Basis of the report

- a. With regard to the language, the international search was carried out on the basis of the international application in the language in which it was filed, unless otherwise indicated under this item.

☐ The international search was carried out on the basis of a translation of the international application furnished to this Authority (Rule 23.1(b)).
- b. ☐ With regard to any nucleotide and/or amino acid sequence disclosed in the international application, see Box No. I.
2. ☐ Certain claims were found unsearchable (See Box No. II).
3. ☒ Unity of invention is lacking (See Box No. III).
4. With regard to the title,

☒ the text is approved as submitted by the applicant.
☐ The text has been established by this Authority to read as follows:
5. With regard to the abstract,

☐ the text is approved as submitted by the applicant.
☒ the text has been established, according to Rule 38.2(b), by this Authority as it appears in Box No. IV. The applicant may, within one month from the date of mailing of this international search report, submit comments to this Authority.
6. With regard to the drawings,

- a. the figures of the drawings to be published with the abstract are Figures Nos. **1 & 8**

☐ as suggested by the applicant.
☐ As selected by this Authority, because the applicant failed to suggest a figure.
☒ as selected by this Authority, because these figures better characterize the invention.
 - b. ☐ none of the figures is to be published with the abstract.

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Box No. II Observations where certain claims were found unsearchable (Continuation of item 2 of first sheet)

This international search report has not been established in respect of certain claims under Article 17(2)(a) for the following reasons:

1. ☐ Claims Nos.:
because they relate to subject matter not required to be searched by this Authority, namely:

2. ☐ Claims Nos.:
because they relate to parts of the international application that do not comply with the prescribed requirements to such an extent that no meaningful international search can be carried out, specifically:

3. ☐ Claims Nos.:
because they are dependent claims and are not drafted in accordance with the second and third sentences of Rule 6.4(a)

Box No. III Observations where unity of invention is lacking (Continuation of item 3 of first sheet)

This International Searching Authority found multiple inventions in this international application, as follows:

See supplement sheet

1. ☐ As all required additional search fees were timely paid by the applicant, this international search report covers all searchable claims.
2. ☒ As all searchable claims could be searched without effort justifying an additional fee, this Authority did not invite payment of any additional fee.
3. ☐ As only some of the required additional search fees were timely paid by the applicant, this international search report covers only those claims for which fees were paid, specifically claims Nos.:

4. ☐ No required additional search fees were timely paid by the applicant. Consequently, this international search report is restricted to the invention first mentioned in the claims; it is covered by claims Nos.:

Remark on Protest

- ☐ The additional search fees were accompanied by the applicant's protest.
- ☐ No protest accompanied the payment of additional search fees.

Box No. IV Text of the Abstract (Continuation of item 5 of the first sheet)

A device (14), to improve the working of an inline catalytic converter (13), the device (14) affecting the flow of hot exhaust gases to improve the transfer of heat from the exhaust gases to the catalytic converter (13). The device (14) may include a profile comprising a plurality of recesses or cavities (figure 1) to facilitate increased turbulence of the gases to improve heat absorption, or a valve (24) which is operable between an open or closed or partially closed position, the valve being downstream from the catalytic converter and functioning to increase the resident time of the exhaust gases about the catalytic converter (13).

INTERNATIONAL SEARCH REPORT

International application No.

PCT/AU2004/001821

A. CLASSIFICATION OF SUBJECT MATTER

Int. Cl. ⁷: F01N 3/038, 3/10, 3/20; B01D 53/94

According to International Patent Classification (IPC) or to both national classification and IPC

B. FIELDS SEARCHED

Minimum documentation searched (classification system followed by classification symbols)

Documentation searched other than minimum documentation to the extent that such documents are included in the fields searched

Electronic data base consulted during the international search (name of data base and, where practicable, search terms used)

DPWI: Catalyst, catalytic, convert, device, exhaust, insert, eddy, turbulence, lag, lamella, wake, lamella. Heat, hot, therm, temperature and IPC F01N 3/-, F01N 7/-, B01D 53/-

C. DOCUMENTS CONSIDERED TO BE RELEVANT

Category	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
P, X	US 6737027 B1 (MYERS) 18 May 2004 Column 2 lines 50-60, column 3 lines 21-45	1-3
X	JP 9-79032 A (CALSONIC CORP) 25 March 1997 Figures 4 and 6 and Derwent patent abstract accession no. 97-242893/22, classes Q51 Q52 Q66.	1, 11, 12, 15, 16
X	GB 2334305 A (FORD GLOBAL TECHNOLOGIES, INC.) 18 August 1999 Whole document	1, 11-16
X	WO 2002/068807 A1 (MITSUBISHI JIDOSHA KOGYO KABUSHIKI KAISHA) 6 September 2002 (equiv: US 6711892 publication date: 30 March 2004) Figure 1 and Derwent abstract accession no 2002-657730/70, classes E36 H06 J04 (J01)	1, 11, 12, 15, 16

☒ Further documents are listed in the continuation of Box C
 ☒ See patent family annex

* Special categories of cited documents: "A" document defining the general state of the art which is not considered to be of particular relevance "E" earlier application or patent but published on or after the international filing date "L" document which may throw doubts on priority claim(s) or which is cited to establish the publication date of another citation or other special reason (as specified) "O" document referring to an oral disclosure, use, exhibition or other means "P" document published prior to the international filing date but later than the priority date claimed		"T" later document published after the international filing date or priority date and not in conflict with the application but cited to understand the principle or theory underlying the invention "X" document of particular relevance; the claimed invention cannot be considered novel or cannot be considered to involve an inventive step when the document is taken alone "Y" document of particular relevance; the claimed invention cannot be considered to involve an inventive step when the document is combined with one or more other such documents, such combination being obvious to a person skilled in the art "&" document member of the same patent family
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 Date of the actual completion of the international search
 21 February 2005

 Date of mailing of the international search report
 08 MAR 2005

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D.R. LUM

INTERNATIONAL SEARCH REPORT

International application No.

PCT/AU2004/001821

C (Continuation). DOCUMENTS CONSIDERED TO BE RELEVANT		
Category*	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
X	US 4727796 A (DERKACH) 1 March 1988 Whole document	1, 11-13
X	US 5355673 A (STERLING et al) 18 October 1994 Whole document	1; 11, 1,2, 14, 15

Supplemental Box

(To be used when the space in any of Boxes I to VIII is not sufficient)

Continuation of Box No: III

The international application does not comply with the requirements of unity of invention because it does not relate to one invention or to a group of inventions so linked as to form a single general inventive concept. In coming to this conclusion the International Searching Authority has found that there are different inventions as follows:

1. Claims 1-10 are directed to a device to improve the working of an inline catalytic converter. It is considered that the device comprises a particular profile comprising a plurality of recesses or cavities to facilitate improve heat absorption comprises a first "special technical feature".
2. Claims 1, 11-16 are directed to a device to improve the working of an inline catalytic converter. It is considered that device comprising a valve which is operable between an open and a closed or partially closed position and located downstream from the catalytic converter to increase the resident time of eh exhaust gas around the catalytic converter comprises a second special technical feature.

These groups are not so linked as to form a single general inventive concept, that is, they do not have any common inventive features, which define a contribution over the prior art. The common concept linking together these groups of claims is the general broad feature of claim 1. However this concept is not novel in the light of all the documents cited in this report. Therefore these claims lack unity a posteriori.

INTERNATIONAL SEARCH REPORT

Information on patent family members

International application No.

PCT/AU2004/001821

This Annex lists the known "A" publication level patent family members relating to the patent documents cited in the above-mentioned international search report. The Australian Patent Office is in no way liable for these particulars which are merely given for the purpose of information.

Patent Document Cited in Search Report			Patent Family Member				
US	5355673	NONE					
US	4727796	NONE					
WO	02068807	EP	1365137	JP	2002256953	JP	2003097333
		US	6711892	US	2003115854		
GB	2334305	NONE					
JP	09079032	NONE					
US	6737027	NONE					
Due to data integration issues this family listing may not include 10 digit Australian applications filed since May 2001.							
END OF ANNEX							

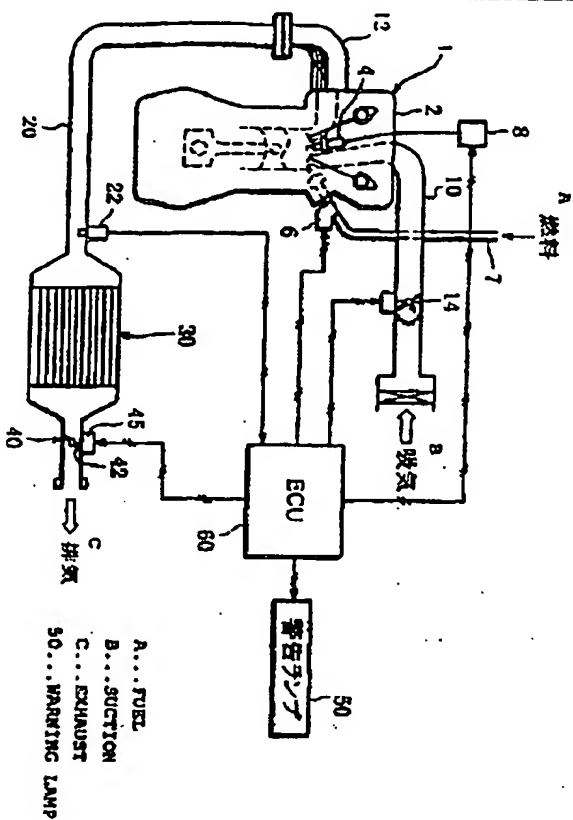
<p>2002-657730/70 E36 H06 J04 (J01) MITM 2001.02.26 MITSUBISHI JIDOSHA KOGYO KK *WO 200268807-A1 2001.09.21 2001-288415(+2001JP-050521) (2002.09.06) F02D 45/00, F01N 3/20, F02D 13/02, 41/04 Exhaust gas cleaning device has exhaust gas purification means which can reduce harmful materials in exhaust gas, exhaust gas sensor and performance lowering judging means (Jpn) C2002-184694 N(KR US) R(AT BE CH CY DE DK ES FI FR GB GR IE IT LU MC NL PT SE TR) Addnl. Data: TAMURA Y, OKADA K, OHASHI T, YAMADA N, KOGA K 2002.02.26 2002WO-JP01730, 2001.09.21 2001JP-288415</p> <p><u>NOVELTY</u> Exhaust gas cleaning device has (a) an exhaust gas purification means which can reduce harmful materials in exhaust gas under predetermined exhaust gas pressure conditions by attaching to exhaust path of internal combustion engine; (b) an exhaust gas sensor which detects the concentration of specific exhaust gas components in the exhaust gas; and (c) a performance lowering judging means which judges performance lowering of the exhaust gas lowering means by detecting when the exhaust gas pressure conditions are not fulfilled based on the output of the sensor.</p>	<p>E(10-J2D, 11-Q2, 11-Q3, 31-A3, 31-D2, 31-H2, 31- N5B) H(6-C4, 6-C5) J(1-E2, 4-C4)</p> <p><u>USE</u> Used as an exhaust gas purifying device for internal combustion engines to harmful components in exhaust gas.</p> <p><u>ADVANTAGE</u> The sensor is resistant to high temperatures and high pressure. Judging of the lowering of the performance of the purification device can be performed economically.</p> <p><u>DESCRIPTION OF DRAWING</u> Figure 1 shows the exhaust gas purification device of an internal combustion engine. (Drawing contains non-English language text). Internal Combustion Engine 1 Cylinder Head 2 Ignition Plug 4 Fuel Injection Valve 6 Fuel Pipe 7 Ignition Coil 8</p> <p>WO 200268807-A+</p>
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Air Manifold 10
Exhaust Manifold 12
Throttle Valve 14
Exhaust Gas Pipeline 20
Exhaust Gas Sensor 22
Catalyst 30
Exhaust Gas Flow Judging Device 40
Butterfly Valve 42
Actuator 45
Warning Lamp 50
Electrical Control Unit 60

TECHNOLOGY FOCUS

Chemical Engineering - Preferred Device: The exhaust gas purification means includes an exhaust gas flow control valve which can adjust the flow path surface area of the exhaust gas flow path. The performance lowering judging means judges the abnormality of the exhaust gas flow control valve. The performance lowering judging means judges performance lowering by comparing the output of the exhaust gas sensor and the target output from the same exhaust gas component concentration under standard pressure. The exhaust gas sensor has properties for detecting ≥ 2 exhaust gas component concentrations,

detects the concentration of > 1 specific exhaust gas component when the exhaust gas air fuel ratio is a lean air fuel ratio and detects other specific exhaust gas component concentrations when it is a rich air fuel ratio. The performance lowering judging means judges the necessity of the regeneration of the exhaust gas pretreatment device.



(63pp0982DwgNo.1/20)

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